WHAT IS CLAIMED IS:

CLAIM 1. In a rotational casting apparatus for coating a body with an elastomer comprising a main frame for supporting a body to be coated with elastomer, a mixing head in which a liquid elastomer is contained, and dispensing means operatively connected with said mixing head for dispensing liquid elastomer onto a body to be coated supported by said main frame, the improvement comprising:

said dispensing means comprising nozzle means having an interior flow passageway through which the liquid elastomer from said mixing head flows;

said interior flow passageway defining a straight longitudinal axis along the length thereof, and having an inlet section in fluid cooperation with said mixing head, an intermediate section, and an outlet opening;

said intermediate section comprising a plurality of different portions, each said portion having a cross-sectional shape along said longitudinal axis different from a cross sectional shape of another of said plurality of different portions; each said cross-sectional shape being defined in a plane transverse to said longitudinal axis;

each said cross-sectional shape of each of said plurality of different portions defining a cross-sectional area substantially equal to the cross-sectional area of another said cross-sectional shape of said plurality of different cross-sectional shapes;

said outlet opening having a substantially elongated-like shape and having a cross-sectional area greater than said cross-sectional area of each said cross-sectional shape of said plurality of different cross-sectional shapes, whereby substantial laminar flow through said

intermediate section and substantial equality of dwell-time of each hypothetical section of flowing liquid elastomer in said intermediate section occurs.

CLAIM 2. The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said inlet section of said interior passageway comprises laminar-flow tubular section for ensuring laminar flow therein.

CLAIM 3. The rotational casting apparatus for coating a body with an elastomer according to claim 2, wherein said laminar-flow tubular section for ensuring laminar flow comprises a venturi-flow tubular portion, said venturi-flow tubular portion having an end-cross-section having a cross-sectional area substantially equal to said cross-sectional area of each of said plurality of different cross-sectional shapes.

CLAIM 4. The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said plurality of different portions comprises a first series of substantially circular cross sections and second series of substantially ellipse-like cross sections.

CLAIM 5. The rotational casting apparatus for coating a body with an elastomer according to claim 4, wherein said plurality of different portions further comprises a third series of substantially elongated slot-like cross sections.

CLAIM 6. The rotational casting apparatus for coating a body with an elastomer according to claim 5, wherein at least some of said third series of substantially elongated slot-like cross sections are an oval-of-Cassini-like shape.

CLAIM 7. The rotational casting apparatus for coating a body with an elastomer according to claim 6, wherein said outlet opening is an oval-of-Cassini-like shape.

CLAIM 8. The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said outlet opening is an oval-of-Cassini-like shape.

CLAIM 9. The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said outlet opening comprises a cross-sectional area at least twice as great as said cross-sectional area of each said cross-sectional shape of said plurality of different cross-sectional shapes.

CLAIM 10. The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said plurality of different portions shapes comprises a first series of substantially circular cross-sectional shapes, and a second series of substantially elongated cross-sectional shapes.

CLAIM 11. The rotational casting apparatus for coating a body with an elastomer according to claim 10, wherein at least some of said second series of substantially elongated cross- sectional shapes are an oval-of-Cassini-like shape.

CLAIM 12. The rotational casting apparatus for coating a body with an elastomer according to claim 11, wherein said outlet opening is an oval-of-Cassini-like shape.

CLAIM 13. The rotational casting apparatus for coating a body with an elastomer according to claim 12, wherein said outlet opening comprises a cross-sectional area at least twice as great as said cross-sectional area of said second series of cross-sectional shapes.

CLAIM 14. The rotational casting apparatus for coating a body with an elastomer according to claim 10, wherein each said cross section of said second series of substantially elongated cross-sectional shapes comprises a horizontal x-coordinate dimension and a vertical y-coordinate direction; each said cross section of said third series of elongated cross- section shapes having a x-y product different from that of any other respective said cross section of said third series.

CLAIM 15. The rotational casting apparatus for coating a body with an elastomer according to claim 1, wherein said inlet section of said interior passageway comprises a laminar-flow tubular section for ensuring laminar flow therein; said laminar-flow tubular section comprising a venturi-flow tubular portion, said venturi-flow tubular portion having a circular end-cross-section having a cross-sectional area substantially equal to said cross-sectional area of each of said plurality of different cross-sectional shapes.

CLAIM 16. A method of equalizing the dwell-time of each hypothetical section of flowing liquid elastomer in a dispensing nozzle of a rotational casting apparatus for coating a body with

an elastomer, which rotational casting apparatus comprises a main frame for supporting a body to be coated with elastomer, a mixing head in which a liquid elastomer is contained, dispensing nozzle means operatively connected with said mixing head for dispensing liquid elastomer onto a body to be coated supported by said main frame and comprising an unbranched interior flow passageway through which the liquid elastomer from said mixing head flows, said interior flow passageway defining a longitudinal axis along the length thereof and having an inlet section in fluid cooperation with said mixing head, an intermediate section, and an outlet opening, said method comprising:

(a) transporting said liquid elastomer through said intermediate section with substantially laminar flow;

(b) said step (a) comprising passing said liquid elastomer through a plurality of different cross-sectional shapes along said longitudinal axis with each said cross-sectional shape being defined in a plane transverse to said longitudinal axis and with each said cross-sectional shape having a cross-sectional area substantially equal to the cross-sectional area of another cross-sectional shape; and

(c) dispensing the liquid elastomer onto the body to be coated through the an outlet opening.

CLAIM 17. The method according to claim 16, wherein said step (c) comprises dispensing the liquid elastomer through an outlet opening having a substantially elongated-like shape and having a cross-sectional area greater than the cross-sectional area of each of said plurality of different cross-sectional shapes.

CLAIM 18. In a rotational casting apparatus for coating a body with an elastomer comprising a main frame for supporting a body to be coated with elastomer, a mixing head in which a liquid elastomer is contained, and dispensing means operatively connected with said mixing head for dispensing liquid elastomer onto a body to be coated supported by said main frame and having an outlet for dispensing the liquid elastomer on a body to be coated, the improvement comprising:

said dispensing means comprising nozzle means having an unbranched interior flow passageway through which the liquid elastomer from said mixing head flows;

said interior flow passageway defining a straight longitudinal axis along the length thereof and having an inlet section in fluid cooperation with said mixing head and an intermediate section;

said intermediate section comprising a plurality of different cross-sectional shapes along said longitudinal axis; each said cross-sectional shape being defined in a plane transverse to said longitudinal axis;

each said cross-sectional shape defining a cross-sectional area substantially equal to the cross-sectional area of another said cross-sectional shape.

CLAIM 19. The rotational casting apparatus according to claim 18, wherein said outlet opening has a shape similar to the shape of the last cross-sectional shape of said intermediate section adjacent thereto, whereby substantial laminar flow through said intermediate section and substantial equality of dwell-time of each hypothetical section of flowing liquid elastomer in said intermediate section occurs; said plurality of different cross sections comprising a first series of

substantially circular cross-sectional shapes, a second series of substantially ellipse-like cross-sectional shapes, and a third series of substantially elongated cross-sectional shapes.

CLAIM 20. In a rotational casting apparatus for coating a body with an elastomer comprising a main frame for supporting a body to be coated with elastomer, a mixing head in which a liquid elastomer is contained and having an outlet, and dispensing means operatively connected with said mixing head for dispensing liquid elastomer onto a body to be coated supported by said main frame, the improvement comprising:

said dispensing means comprising nozzle means having an interior flow passageway through which the liquid elastomer from said mixing head flows;

said interior flow passageway defining a longitudinal axis along the length thereof, and having an inlet section in fluid cooperation with said outlet of said mixing head, an intermediate section, and an outlet opening;

said intermediate section comprising a plurality of different cross-sectional shapes along said longitudinal axis; each said cross-sectional shape being defined in a plane transverse to said longitudinal axis; and

each said cross-sectional shape defining a cross-sectional area substantially equal to the cross-sectional area of every other said cross-sectional shape of said plurality of different cross-sectional shapes.